flammable or toxic gas at a rate greater than 1 liter per kilogram of the material, per hour, when tested in accordance with paragraph 4 of appendix E to this part.

[Amdt. 173–224, 55 FR 52634, Dec. 21, 1990, as amended at 56 FR 66268, Dec. 20, 1991; 57 FR 45461, Oct. 1, 1992; Amdt. 173–233, 58 FR 33305, June 16, 1993; Amdt. 173–234, 58 FR 51532, Oct. 1, 1993; Amdt. 173–241, 59 FR 67507, Dec. 29, 1994]

§173.125 Class 4—Assignment of packing group.

(a) The packing group of a Class 4 material is assigned in Column (5) of the §172.101 Table. When the §172.101 Table provides more than one packing group for a hazardous material, the packing group shall be determined on the basis of test results following test methods given in appendix E of this part and by applying the appropriate criteria given in this section.

(b) Packing group criteria for readily combustible materials of Division 4.1 is as follows:

(1) For materials other than metal powders, a material is assigned to—

(i) Packing Group II, if the burning rate is greater than 2.2 mm/s and the flame passes the wetted zone; or

(ii) Packing Group III, if the burning rate is greater than 2.2 mm/s and the wetted zone stops the flame.

(2) For metal powders, a material is assigned to—

(i) Packing Group II, if the zone of reaction spreads over the whole length of the sample in 5 minutes or less; or

(ii) Packing Group III, if the zone of reaction spreads over the whole length of the sample in more than 5 but not more than 10 minutes.

(3) Solids which may cause a fire through friction are assigned to packing groups by analogy with existing entries in the §172.101 Table.

(c) Packing group criteria for Division 4.2 materials is as follows:

(1) Pyrophoric liquids and solids of Division 4.2 are assigned to Packing Group I.

(2) A self-heating material is assigned to—

(i) Packing Group II, if the material gives a positive test result when tested with the 2.5-cm cube size sample; or

(ii) Packing Group III, if the material gives a positive test result when tested with the 10-cm cube size sample but a negative test result with the 2.5-cm cube size sample.

(d) A Division 4.3 dangerous when wet material is assigned to—

(1) Packing Group I, if spontaneous ignition occurs, or demonstrates a tendency of spontaneous ignition, or the rate of evolution of flammable gases is equal or greater than 10 liters per kilogram of material over any one minute; or

(2) Packing Group II, if the rate of evolution of flammable gases is equal to or greater than 20 liters per kilogram of material per hour, and which does not meet the criteria for Packing Group I; or

(3) Packing Group III, if the rate of evolution of flammable gases is greater than 1 liter per kilogram of material per hour, and which does not meet the criteria for Packing Group I or II.

[Amdt. 173–224, 55 FR 52634 Dec. 21, 1990, as amended by Amdt. 173–255, 61 FR 50625, Sept. 26, 1996]

EFFECTIVE DATE NOTE: By Amdt. 173–255, 61 FR 50625, Sept. 26, 1996, in §173.125, paragraph (a) was revised, effective Jan. 1, 1997. For the convenience of the user, the superseded text is set forth as follows:

§173.125 Class 4—Assignment of packing group.

(a) The packing group of a Class 4 material is as assigned in Column 5 of the 172.101 Table. When the 172.101 Table indicates that the packing group of a hazardous material is to be determined on the basis of test results following test methods given in appendix E of this part, the packing group shall be determined by applying the appropriate criteria given in this section.

* * * * *

§173.127 Class 5, Division 5.1—Definition and assignment of packing groups.

(a) *Definition.* For the purpose of this subchapter, *oxidizer* (Division 5.1) means a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials. A solid material is classed as a Division 5.1 material if, when tested in accordance with appendix F to this part, in either concentration tested, the mean

burning time of the test mixture, is equal to or less than that of the average of the three tests with ammonium persulfate mixture. A liquid is classed as a Division 5.1 material by analogy to existing entries in the § 172.101 Table.

(b) *Assignment of packing group.* (1) The packing group of a Division 5.1 material shall be as assigned in Column (5) of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a hazardous material, the packing group shall be determined on the basis of test results following test methods given in appendix F of this part and by applying the following criteria:

(2) Liquid oxidizers are assigned to packing groups by analogy with existing entries in the § 172.101 Table.

[Amdt. 173–224, 55 FR 52634 Dec. 21, 1990, as amended by Amdt. 173–234, 58 FR 51532, Oct. 1, 1993; Amdt. 173–255, 61 FR 50625, Sept. 26, 1996]

EFFECTIVE DATE NOTE: By Amdt. 173–255, 61 FR 50625, Sept. 26, 1996, in § 173.127, the section heading was revised, paragraph (b)(1) was removed, paragraphs (b)(2) and (b)(3) were redesignated as paragraphs (b)(1) and (b)(2), and the paragraph (b) heading and the newly designated paragraph (b)(1) introductory text were revised, effective Jan. 1, 1997. For the convenience of the user, the text remaining in effect until Jan. 1, 1997 is set forth as follows:

§ 173.127 Class 5, Division 5.1—Definition and assignment of packing groups.

* * * * *

(b) *Assignment of packing groups.* (1) The packing group of a Division 5.1 material shall be as assigned in Column 5 of the § 172.101 Table.

(2) When the § 172.101 Table indicates that the packing group of a solid oxidizer is to be determined on the basis of the test results following test method given in appendix F to this part, the packing group shall be assigned by the following criteria:

(i) Packing Group I, for a material which, in either concentration tested, exhibits a burning time equal to or less than that of potassium bromate;

(ii) Packing Group II, for a material which, in either concentration tested, exhibits a burning time between that of potassium bromate and that of potassium perchlorate; or

(iii) Packing Group III, for a material which, in either concentration tested, exhibits a burning time between that of potassium perchlorate and that of ammonium persulphate.

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§ 173.128 Class 5, Division 5.2—Definitions and types.

(a) *Definitions.* For the purposes of this subchapter, *organic peroxide (Division 5.2)* means any organic compound containing oxygen (O) in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals, unless any of the following paragraphs applies:

(1) The material meets the definition of an explosive as prescribed in subpart C of this part, in which case it must be classed as an explosive;

(2) The material is forbidden from being offered for transportation according to § 172.101 of this subchapter or § 173.21;

(3) The Associate Administrator for Hazardous Materials Safety has determined that the material does not present a hazard which is associated with a Division 5.2 material; or

(4) The material meets one of the following conditions:

(i) For materials containing no more than 1.0 percent hydrogen peroxide, the available oxygen, as calculated using the equation in paragraph (a)(4)(ii) of this section, is not more than 1.0 percent, or

(ii) For materials containing more than 1.0 percent but not more than 7.0 percent hydrogen peroxide, the available oxygen, content (O_a) is not more than 0.5 percent, when determined using the equation:

$$O_a = 16 \times \sum_{i=1}^{k} \frac{n_i c_i}{m_i}$$

where, for a material containing k species of organic peroxides:

n_i=number of -O-O- groups per molecule of the *i*th species

c_i=concentration (mass percent) of the *i*th species

m_i=molecular mass of the *i*th species